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PSYCHE

VOL. XXVII DECEMBER 1920 No. 6

NOTES ON THE FUNGUS-BEETLE, *CIS VITULA* MANN.

By Harry B. Weiss,
New Brunswick, N. J.

The following notes are the results of observations made on *Cis vitula* Mann.,[1] collected in *Polyporus versicolor* L., at Alma, Calif., during January by Mr. Hartman and forwarded to me together with a large quantity of the fungus by Mr. H. E. Burke. *Polyporus versicolor* is a common and widely distributed polypore and in this particular instance, it was taken on dead almond (*Prunus amygdalus*).

At the time of the receipt of the infested fungus, only adults were found. Several months later, however, after having been kept in a warm room, larvæ and pupæ were secured. The larvæ work in the context of the fungus especially in the thickest parts at the base, riddling it in all directions. Pupation also takes place in the basal context. The beetles range over the entire polypore consuming all parts of it. On account of the hairiness of the larvæ, they become covered with particles of excrement and borings found in their channels, but on account of the dryness of these materials few particles adhere to a larva after it has been removed from the fungus.

Full-grown larva. Length, 3.5 to 4 mm. Width, 0.8 mm. Whitish, sometimes slightly creamy, except for mouth parts, tarsal claws, dorsal abdominal plates of the eighth and ninth segments and posterior hooks which are brownish to brownish black; elongate subcylindrical, tapering slightly at anterior and posterior ends; body flattened beneath. Dorsal surfaces of head and body covered with minute, fine hairs. Head and each body segment also bear several, comparatively long, fine hairs. Ventral surface bears only a few, long, fine hairs. Head narrower than posterior edge of prothorax. Dorsal surface of eighth abdominal segment bears a slightly chitinized, somewhat brownish plate with a few minute tubercles. Dorsal surface of ninth abdominal segment bears a larger, more strongly chitinized, light brownish plate with numerous minute tubercles and terminating in two comparatively prominent chitinous, acutely pointed spines or hooks which are curved upward.

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[1] Kindly identified by Mr. Charles Dury.

Pupa. Length, 3 mm. Width, 1.1 mm. Whitish, somewhat elongate, sides subparallel, anterior and posterior ends tapering slightly. Dorsal surfaces of thorax and abdomen clothed with minute fine hairs. Dorsal surface of prothorax bears several long, fine hairs. A transverse row of long, fine hairs on dorsal surfaces of meso and metathorax and each abdominal segment. Anterior edge of prothorax bilobed. Dorsal surface of prothorax bears numerous, uniformly minute, brownish tubercles, a few of which bear long, fine hairs and the remainder, minute hairs. Last abdominal segment bears a pair of dorsal, acutely pointed, brown-tipped, diverging spines. Ventral surface and wing cases bearing a few hairs.

Polyporus versicolor appears to be a favorite food plant of members of the *Cioidæ*, many species occurring by hundreds in a small group of sporophores. It does not appear likely that the beetles play anything except possibly an accidental part in the distribution of the spores which are normally wind borne. The beetles frequent the interior of the fungus, appear to shun the light except when in search of fresh food and remain in the sporophore until it is almost all consumed. On account of the abundance of *Polyporus versicolor*, fresh food is usually within easy reach and requires only a migration of several inches or less on the part of the beetles. Examinations of the trunks of trees in various degrees of health and which were close to stumps covered by *Polyporus versicolor* infested by *Cioidæ* failed to reveal the presence of any beetles belonging to this family.

NOTES ON THE LIFE-HISTORY OF *ANTHOPHORA STANFORDIANA.*

By H. H. Nininger,

McPherson College, McPherson, Kans.

Early in June of 1916 I chanced upon a small aggregation of these large mining bees on the sunny slope of a moist clay bank in the foot hills of the San Gabriel Mountains of southern California. Their burrows were placed close together and in an almost vertical position, and over the entrances of many of them were constructed very peculiar bent-over chimneys of clay. In these particulars they fit very well the description given by Kellogg. It was a bright spring day and the warm sunshine kindled the vital spark in these insects to the greatest activity. They were scurrying in and out of their burrows and flying to and from a nearby spring in what seemed to be feverish haste, until the hundred or more individuals produced as much buzzing and humming as one would witness at the entrance of a very strong colony of honey bees.

They were engaged in digging tunnels, excavating nest-chambers, building nesting cells within the nest-chambers, depositing eggs, and provisioning nest cells. All of these activities were being pursued most industriously.

At the bottom of a tunnel five to seven inches deep, the bee excavated an oval chamber about three-fourths inch in diameter by one inch deep, and then built up within this a nest-cell to fit, made of pellets of clay and worked smooth on the inner side, after which it was coated with a thin layer of water-proofing which seemed to be a salivary secretion. The top of the cell was, of course, left open until the task of provisioning was completed. When all completed but the cover, *stanfordiana* carried pollen and made it into a very dry kind of bee bread on which an egg was laid. Then she carried from the spring several drops of water which were added to the mass without mixing. Having thus provided the entire food supply for her young, she walled the cell over and sealed it on the inner surface with the water-proofing, doubtless by inserting her long tongue through a minute pore left in the center of the lid, as evidenced by its structure, then sealed the pore, first with water-proofing and afterwards with clay. Thus all communication with the outside world was cut off before the egg ever hatched.

I do not know how to account for Mr. Kellogg's observation that "food is carried to the young in the open cell." (*cf.* Kellogg, American Insects, p. 516.) I observed two hundred or more of these cells and all were sealed tightly with egg and provisions. More than a hundred of these sealed cells were kept in my laboratory until the emergence of the adult the following spring.

After provisioning one cell, the same bee probably constructed and provisioned others, as there were usually found from two to five cells at the bottom of each tunnel, some placed one above another, while others were set side by side. A large number of cells were opened and were found to contain all stages of the young insects from the egg to the almost mature larvæ. These young were kept in open cells or transferred to artificial wax cells, or, in a few cases, the mature larvæ were placed upon dry sawdust and kept in the laboratory until they matured or were destroyed by fungi. In this way their development was observed thru all of its stages. About a hundred cells were preserved unopened in a cigar box.

Upon hatching, the larvæ feed and grow rapidly for about three weeks, by which time their growth is complete. Then they enter upon a resting stage which lasts about nine months. During the early part of this period of inactivity there is a gradual and slight change in form, resulting in the partial disappearance of segmental rings in the anterior region of the body, but there is no movement exhibited during the entire nine months save a slow return of the larva to its natural form when pressed out of shape. At the end of this period or at the age of about ten months it accomplishes its first moult and enters upon the pupa stage. About seven or eight weeks later it moults again, reaching the adult stage but a few days less than a year old, whereupon the bee chews its way out of the cell.

On Angel Island, two years later, a very extensive aggregation of these bees was found by the writer but further study was at the time impossible. On a steep bank, facing south at the shore of the bay, extending over several square rods, several thousands of these bees were nesting. The appearance of their burrows was the same as that already described.

To the writer these studies revealed some very interesting facts:

First: In their natural state these bees are subjected to from seven to twenty inches of rainfall during the winter. The majority of these cells in the laboratory were allowed to become dry within a few days after sealing and never received any moisture other than that which they could get from the air in an ordinary school room, yet these bees seemed to emerge normally and at approximately the same time as control specimens which were watered several times.

Second: Those left in broken cells, some of which were allowed to lie on dry sawdust in no cell at all, emerged normally, differing in this respect from Xylocopa orpifex and X. varipuncta, which were subjected to the same test and which failed to emerge normally when left out of contact with an enclosing cell wall.

Third: Several larvæ were left exposed during the entire season in a cabinet in which were kept chemicals, including HCl, HNO_3, and NH_4OH, and tho kept in stoppered bottles the fumes from these chemicals were plainly perceptible each time I opened the cabinet. These specimens all emerged normally in the spring.

The distribution of this species as given by Lutz and Cockerell in their forthcoming catalog is as follows:

Anthophora stanfordiana Cockerell, 1904 *c*, p. 32. ♀, ♂; Stanford University, California; V; Nests. Viereck, 1905, p. 314. Corvallis, Ore.; III, V, VI (Cordley). Kellogg, American Insects, 1908, p. 516. Description of Nest. Bray, Pomona Journal Zoöl., 1917, p. 93. Claremont, Calif.; V; at *Amsinckia intermedia*.

COLEOPTERA ASSOCIATED WITH *POLYPORUS VERSICOLOR* L. IN NEW JERSEY.

By Harry B. Weiss,
New Brunswick, N. J.

The following notes relate to observations made during a year's collecting on the sporophores or fruiting bodies of *Polyporus versicolor* L., in various parts of New Jersey. Eighty percent of some fifty species of polypores found in New Jersey were observed to be infested by insects and *Polyporus versicolor* appeared to attract the largest number of species all of which belonged to the Coleoptera.

This polypore is extremely common in most parts of New Jersey, occurring on all kinds of dead wood, many stumps being completely covered by it. According to Murrill[1] it also causes a serious root-rot in many trees and is a wound parasite in *Catalpa*. The pileus or shelf-like part of this fungus is thin and leathery, densely imbricate, variable in color and marked by narrow multicolored zones of various colors ranging from white to yellow, brown, reddish, greenish, blackish, etc. The context or inner substance of the pileus is white and it is this portion which appears to furnish most of the food for insects although at times the entire fungus is riddled.

It is difficult to explain why *versicolor* harbors so many insects unless it is the qualities of the context which attract them. Other polypores having a much thicker and fleshier context attract considerably fewer species. Altogether twenty-four species of Coleoptera, representing thirteen families, were found associated with *versicolor* as shown by the following table:

COLEOPTERA ASSOCIATED WITH *POLYPORUS VERSICOLOR.*

Family.	*Species.*	*Location.*
Carabidæ	*Tachys flavicauda* Say	on
Scaphidiidæ	*Scaphidium 4-guttatum* Say	on
Erotylidæ	*Megalodacne fasciata* Say	in
Mycetophagidæ	*Mycetophagus flexuosus* Say	in
Histeridæ	*Hister lecontei* Mars.	in
itidulidæ	*Phenolia grossa* Fab.	on
	Rhizophagus bipunctatus Say	in
Trogositidæ	*Tenebriodes corticalis* Melsh.	on
Bostrychidæ	*Endecatomus rugosus* Rand.	in
Cioidæ	*Cis fuscipes* Mell.	breeds in
	Cis wenzeli Dury	breeds in
	Xestocis levettei Csy.	in
	Sulcacis lengi Dury	breeds in
	Strigocis opacicollis Dury	in
	Octotemnus lævis Csy.	in
	Ennearthron oblongus Blatch.	in
Scarabæidæ	*Onthophagus hecate* Panz.	on

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[1] Northern Polypores, p. 6, 1914.

Tenebrionidæ	*Hoplocephala bicornis* Oliv.	in
	Hoplocephala viridipennis Fab.	in
	Boletotherus bifurcus Fab.	on
Melandryidæ	*Penthe obliquata* Fab.	on
	Eustrophus bicolor Say	on
	Orchesia castanea Mels.	in
Anthribidæ	*Euparius marmoreus* Oliv.	in

This table also indicates whether the species were found in, on or actually breeding in the fungus. Probably all of the *Cioidæ* mentioned develop in the fungus and it is believed that the remainder of the species mentioned except those belonging to predaceous groups such as the *Carabidæ* and *Histeridæ* are fungus eaters. In fact, in addition to the *Cioidæ* listed, such species as *Mycetophagus flexuosus*, *Phenolia grossa*, *Hoplocephala bicornis*, *H. viridipennis*, *Boletotherus bifurcus* and *Euparius marmoreus* were observed feeding on the context.

Most of the species listed were taken during the summer months but many of the *Cioidæ* can be found in the partly eaten fungus during the winter either in the larval or adult stages or both. Some of the other species can be found overwintering in the fungus or beneath the bark of fungus covered logs. Except for a species of thrips and several Hymenopterous parasites of beetles, only Coleopterous insects were found on or in *Polyporus versicolor* although other species of polypores were found to be inhabited by a few members of the *Lepidoptera*, *Diptera* and *Hemiptera* in addition to *Coleoptera*.

HEMIPTERA COLLECTED IN WESTERN NEW ENGLAND, CHIEFLY FROM MOUNTAINS.

By H. M. Parshley,
Smith College.

An opportunity of collecting in new localities was lately afforded me, when, through the kindness of Mr. C. S. Neumann of New Britain, Conn., I took part with my colleagues Professors Gorokhoff and Kennedy in an automobile trip through northwestern Massachusetts and southern Vermont. The non-entomological members of the party good naturedly consented to frequent pauses where conditions seemed favorable for collecting, and thus I was enabled to gather the material reported on below. Among the records presented, all of which contribute to widen our knowledge of the distribution of Hemiptera in New England, a few are of especial significance.

The known range of *Rheumatobates rileyi* is extended considerably to the northward, showing that this species is by no means austral in habitat, as for a long time seemed probable. Hussey[1] has lately reported it as occurring in northern Michigan, and I have found it recently in Massachusetts[2] and now in southern Vermont. Another interesting case is that of *Nabis limbatus*, occurring in numbers on the summit of Mt. Greylock, where it was found also by Professor A. P. Morse in 1894. The known distribution of this species provides us with a striking instance not only of boreal habitat (in North America) but also of holarctic range. In the Old World it extends from Britain far into Siberia and southward to the warm climate of Algeria, but in North America it is met with only in the north or on mountains, in situations where its presence is clearly due not to recent introduction but to ancient migration. Still, we must emphasize the fact that the geographical distribution of but few species of Hemiptera is known in sufficient detail to warrant valid generalization, and thus a fruitful field of research is offered, especially to the careful collector. Nothing will contribute more effectually to this important branch of science than the publication of local lists, if the chief defect in past work of this character, inaccuracy of identification, is adequately guarded against.

Mt. Greylock,[3] *Massachusetts, September 4, 1919.*

Cydnidæ.

Thyreocoris ater (Amyot et Serville).

Sehirus cinctus (Palisot de Beauvois).

Pentatomidæ.

Podisus maculiventris (Say).

Alydidæ.

Alydus pilosulus (Herrich-Schaeffer).

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[1] Waterbugs of Douglas Lake Region, Occas. Papers Mus. Zoöl., Univ. of Michigan, No. 75, 1919, p. 12.

[2] Ethological Remarks on New England Water-striders, Bull. Brooklyn Ent. Soc., Vol. 15, 1920, p. 69.

[3] From the boreal summit, 3,500 feet, unless otherwise stated.

Lygæidæ.

Nysius thymi (Wolff).
Nysius ericæ (Schilling).
Ischnorhynchus geminatus (Say).
Cymus angustatus Stal.
Ligyrocoris diffusus (Uhler).
Ligyrocoris contractus (Say).

A northern species found but once before in Massachusetts.

Perigenes costalis Van Duzee.
Plinthisus americanus Van Duzee.

Long-winged form ♀.—General form more broadly and evenly ovate than in the short-winged phase. Posterior lobe of pronotum somewhat elevated posteriorly, distinctly broader than anterior lobe, the lateral margins strongly sinuate posteriorly. Hemielytra but slightly broader at middle than at base; claval suture very distinct, slightly depressed together with adjacent area; corium acute at apex, the lateral margin straight in basal half, rounded apically, the membranal (apical) margin oblique, slightly convex; membrane hyaline, extending slightly beyond apex of abdomen, broadly rounded at apex, with four rather irregular veins evanescent just beyond middle of membrane. Length, 3.67 mm.; width, 1.63 mm.

Phymatidæ.

Phymata erosa (Linné).

Nabidæ.

Nabis subcoleoptratus Kirby.
Nabis limbatus Dahlbom.
Nabis roseipennis Reuter.

Anthocoridæ.

Triphleps insidiosa (Say).

Miridæ.

Adelphocoris rapidus (Say).
Lygus pratensis var. *oblineatus* (Say).
Lygus vanduzeei Knight.
Lygus pabulinus (Linné).
Plagiognathus spp.

Veliidæ.

Microvelia americana (Uhler).

The wingless form was present in considerable numbers on the surface of a spring halfway up the mountain. The common occurrence of several species of this genus in such isolated situations indicates the importance in the economy of the race of the fully winged phase, which, though very rare, must appear with sufficient frequency to provide for a favorable rate of dispersal.

Haystack Mountain,[4] *Vermont, September 5, 1919.*

Pentatomidæ.

Euschistus tristigmus (Say).
Podisus modestus (Dallas).

Neididæ.

Neides muticus (Say). New to the Vermont list.

Lygæidæ.

Ligyrocoris contractus (Say).

Reduviidæ.

Sinea diadema (Fabricius).

Nabidæ.

Nabis roseipennis Reuter. New to the Vermont list.
Nabis rufusculus Reuter.

Miridæ.

Collaria meilleurii Provancher.
Phytocoris lasiomerus Reuter.
Phytocoris eximius Reuter. Summit. New to the Vermont list.
Lygus vanduzeei Knight. Summit.
Lygus pabulinus (Linné). Summit.
Lygus fagi Knight. Halfway.
Lygus belfragei Reuter. Halfway.

Woodford, Vermont, September 5, 1919.

Tingidæ.

Corythucha heidemanni Drake. New to the Vermont list.

Specimens taken on alder closely agreeing with an example of the species collected by Drake in the type locality. Drake has reported birch as a food plant.

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[4] From near the base unless otherwise stated.

Gerridæ.

Gerris remigis Say.

Gerris marginatus Say. New to the Vermont list.

Rheumatobates rileyi Bergroth. New to the Vermont list. On a quiet pond.

In his Douglas Lake paper (*l. c.*) Hussey gives some interesting observations on color variation in this species, which have led me to examine some hundreds of specimens in my collection, representing localities as follows: Plummers Island, Md.; Cold Spring Harbor, Long Island, N. Y.; White Plains, N. Y.; Northampton, Mass., and Woodford, Vt. I find that in the east, just as in Michigan, specimens from northern localities show a reduction in the extent of yellow pigmentation, and a few of the Vermont examples agree perfectly with Hussey's description of his Douglas Lake form. It would serve no purpose to give varietal names in this case, since almost every imaginable intergradation and permutation of spotting exists. In consulting Bergroth's review[5] of the genus, the student must bear this variation in mind, since the color characters given for *rileyi* and *tenuipes* will not always hold. For example, in *rileyi* the median mesonotal yellow spot is frequently narrower than the pronotal spot and may in fact be absent, while the diverging brown stripes of the mesosternum, stated by Bergroth to be characteristic of *tenuipes* Meinert, may occur also in *rileyi*, though abbreviated before the posterior margin of the sternite. These species may be distinguished with certainty by means of structural criteria much as given by Bergroth, as follows:

Mesonotum about as long as broad; male with hooked hairs of middle tibiæ confined to basal half, hind legs twisted
rileyi Bergroth.

Mesonotum longer than broad; male with hooked hairs of middle tibiæ extending nearly to apex, hind legs straight
tenuipes Meinert.

Searsburg, Vermont, September 5, 1919.

Saldidæ.

Pentacora ligata (Say).

Taken on bare boulders in a rapidly flowing stream.

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[5] Fam. Gerridæ. Subfam. Halobatinæ. Ohio Nat., Vol. 8, 1908, pp. 371–382.

A NEW GENUS IN THE CHILOPOD FAMILY MECISTOCEPHALIDÆ.

By Ralph V. Chamberlin,

Museum of Comparative Zoölogy, Cambridge, Mass.

The new chilopod genus here described is interesting in being the third thus far known as belonging to the subfamily Arrupinæ, under which at present I group those mecistocephaloid forms having the coxæ of the second maxillæ completely separated and the palpus clawless, etc. It is based upon a good series of specimens of a previously undescribed species in the collection of the United States National Museum from South Celebes, where they were collected at Bua-Kraeng, elevation 5,000 feet, by H. Fruhstorfer on February 5, 1896.

Anarrup gen. nov.

Body narrowed caudad.

Head broader than in the Mecistocephalinæ, evenly rounded caudally. Frontal suture strongly marked. No indication of sublateral teeth. Areolated region of clypeus a narrowed band at anterior border, the non-areolated region not divided, its anterior portion bearing numerous setæ, thus contrasting sharply with the condition in Arrup in which the non-areolated area is very short and the setæ sparse.

Labrum tripartite, the median piece very narrow, the lateral pieces with margin smooth, with cilia but little exposed.

Mandible bearing several lamellæ. Teeth of first lamella few (four in genotype), stout. Teeth of median lamella on distal half long, very short and small on proximal part.

Palpus of second maxilla clawless; coxæ meeting at middle, separated by a rather long suture.

Prehensors exposed from above; joints armed within.

Ventral plate of pregenital segment narrow. Coxopleural pores small and numerous.

Anal legs composed of six articles beyond coxopleuræ, unarmed.
Genotype.—*A. nesiotes* sp. nov.

Anarrup nesiotes sp. nov.

Body in general light brown. Head and prehensorial segment and typically also the first two tergites chestnut. Legs fulvous.

Head widest at level of frontal suture, a little narrowing to some distance caudad of middle and the posterior end semicircularly rounded. Head typically near 1.44 times longer than wide.

Non-areolated portion of clypeus extending forward to anterior margin at middle, a narrow areolated band along antennal socket on each side; anterior half of non-areolated area with numerous setæ.

Median piece of labrum very narrow, overlapped on each side by lateral piece, the exposed part linear. Each lateral piece convex over mesal region, the mesal angle rounded, scarcely projecting; margin smooth.

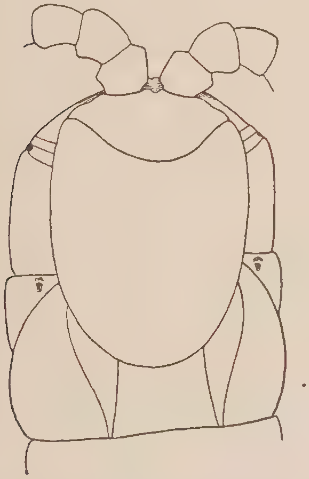

Fig. 1. *Anarrup Nesiotes*, sp. nov. Head and prehensors, dorsal view. x 12.

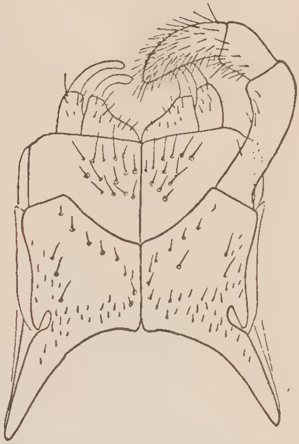

Fig. 2. *Anarrup Nesiotes*, sp. nov. Maxillae, ventral view, with right palpus omitted. x 24

Mandible with ten lamellæ. The first bears four teeth which are much stouter than those of the others. The median lamella bears about forty teeth, of which those of the distal region are very long and those of the proximal region very small. The inner margin of mandible below first lamella is finely toothed or fringed for a short distance.

Anteroectal corner of coxa of first maxilla strongly rounded. Distal joint of palpus of second maxilla densely setose. Posterior angles of coxosterna of second maxillæ rather long, slenderly acute.

Prosternum with two teeth truncate close to base, being very low and broad. Femuroid with a single tooth, this at distal end, noduliform. Next two joints also armed, the tooth of each small and nodular. Claw with a low, obtusely angular, prominence at base.

Sternal impressions distinct, furcate, the angle acute.

Sternite of pregenital segment strongly narrowed caudad, the sides a little incurved, the caudal margin narrow. Coxopleural pores numerous, small and very small.

Number of pairs of legs, forty-one.

Length, to about 60 mm.

A 1919 COLLECTION OF CICADELLIDÆ IN THE ENVIRONS OF BOSTON.

By George W. Barber,

Cereal and Forage Division, U. S. Bureau of Entomology.

The following list of leaf-hoppers represents a collection made entirely during the second half of the 1919 collecting season in towns usually nor further than fifteen miles distant from the State House in Boston, Mass. It represents only very incomplete collections, mostly specimens hastily taken at odd moments while engaged in other work.

Very little appears to have been done in determining the Cicadellid fauna of Massachusetts in any systematic manner, and the present list may be regarded as an introduction to a more complete study of these insects in the state.

It is well known that the years spent in actively combating injurious insects such as the gypsy and brown-tail moths, the elm leaf beetle, and the European corn-borer in this section have left a very noticeable effect on the prevalence of the leaf-eating insects.

It is interesting, therefore, to notice that the effect on sucking insects is evidently not so marked for the accompanying list of fifty-five species and varieties, representing twenty-six genera, taken so unsystematically during but half of one season, cannot nearly represent the total fauna, in this group, that are present.

Two European species, *Deltocephalus striatus* Linn., and *Allygus mixtus* Fabr., are herein reported both taken in the Town of Medford.

I am indebted to Mr. E. H. Gibson, U. S. National Museum, and especially to Mr. D. M. DeLong of Harrisburg, Pa., for kind assistance in determination of species unknown to me.

CICADELLIDÆ.

BYTHOSCOPINÆ.

1767—*Agallia sanguinolenta* (Prov.).
Medford, September 18; Everett, September 30.
1793—*Idiocerus scurra* (Germ).
Cambridge, September 13.

CICADELLINÆ.

1854—*Cicadella hieroglyphica* (Say).
Medford, August 26; Woburn, September 26.
1855—*Cicadella gothica* (Sign).
Woburn, September 25.
1859—*Kolla bifida* (Say).
Medford, August 21–26.
1863—*Helochara communis* Fitch.
Medford, September 24; Woburn, September 26; Melrose, November 11.
1864—*Graphocephala coccinea* (Forst.).
Woburn, August 20; Medford, August 26; Cambridge, September 22.
1874—*Dræculacephala mollipes* (Say).
Medford, August 20, 21, 26, September 18, October 15.
1879—*Dræculacephala noveboracensis* Fitch.
Medford, August 21.

GYPONINÆ.

1879—*Gypona 8-lineata* (Say).
West Medford, August 26, October 7.

1898—*Gypona cana* Burm.
Woburn, September 26.

1920—*Gypona puncticollis* Spangb.
Medford, September 12.

1930—*Xerophloea viridis* (Fabr.).
Medford, September 18.

JASSINÆ.

1933—*Acucephalus nervosus* (Schrank.).
W. Medford, July 25; Medford, August 20.

1936—*Acucephalus albifrons* (Linn).
W. Medford, July 25; Medford, August 20.

1983—*Scaphoideus auronitens* Prov.
Arnold Arboretum, Boston, September 14.

1995—*Scaphoideus luteolus* Van D.
Concord, August 11.

1996—*Scaphoideus immistus* (Say).
Medford, August 26.

2014—*Platymetopius acutus* (Say).
Medford, September 12; Woburn, September 25–26; Everett, September 30.

2023—*Platymetopius frontalis* Van D.
Medford, September 18; Woburn, September 23.

2053—*Deltocephalus sayi* (Fitch).
Cambridge, September 4; Medford, September 18; Woburn, September 26.

2063—*Deltocephalus inimicus* (Say).
Medford, August 9; Cambridge, September 4; Everett, September 30.

2065—*Deltocephalus flavicosta* Stal.
Cambridge, September 4.

2073—*Dettocephalus pascuellus* (Fall) = (Minki Prov.)
Cambridge, September 4; Medford, September 18.

2097—*Deltocephalus balli* Van D.
Cambridge, September 4; Medford, September 8; Melrose, September 26.

Deltocephalus striatus Linn.
Medford, August 26.

2148—*Euscelis elongatus* (Osb.).
Saugus, October 7.

2156—*Euscelis curtisii* (Fitch).
Medford, August 20; Cambridge, September 7; Saugus, October 7.

2170—*Eutettix johnsoni* Van D.
Woburn, September 25.

2179—*Eutettix seminudus* (Say).
Lexington, October 12.

2195—*Phlepsius majestus* O. & B.
Arnold Arboretum, Boston, September 14.

2223—*Phlepsius incisus* Van D.
Arnold Arboretum, Boston, September 14.

2228—Phlepsius irroratus (Say).
Medford, September 12.

—*Allygus mixtus* Fabr.
W. Medford, July 21.

2265—*Thamnotettix clitellarius* (Say).
Saugus, September 8; Woburn, September 25-26; Lexington, October 12.

2312—*Thamnotettix fitchii* Van D.
Medford, September 24.

2314—*Thamnotettix nigrifrons* (Forbes).
Cambridge, September 4 and 13; Everett, September 30.

2324—*Chlorotettix unicolor* (Fitch).
Medford, September 18.

2327—*Chlorotettix tergatus* (Fitch).
Medford, September 26.

2331—*Chlorotettix galbanatus* Van D.
Medford, September 26.

2340—*Jassus olitorius* Say.
Woburn, August 20; Medford, August 26.

2359—*Cicadula lepida* Van D.
Woburn, September 25.

2362—*Cicadula sexnotata* (Fall).
Cambridge, September 13; Woburn, September 26; Everett, September 30.

2370—*Balclutha punctata* Thumb.
Woburn, September 25.

TYPHLOCYBINI.

2400—*Empoasca unica* (Prov.).
Woburn, September 25.

2421—*Empoasca mali* (LeB.).
Woburn, September 26.

2422—*Empoasca flavescens* (Fabr.).
Arlington, November 12.

2426—*Eupteryx melissæ* Curt.
Greater Brewster Island, Boston Harbor, October 27.

2430a—*Empoa querci* var. *gillettei* Van D.
W. Medford, August 26; Saugus, August 28.

2435—*Empoa tenerrima* (H. S.).
Woburn, September 26.

2437—*Empoa rosæ* (Linn).
W. Medford, August 26; Woburn, September 25.

2445—*Erythroneura comes* (Say).
W. Medford, August 26.

2445b—*Erythroneura comes* var. *ziczac* Walsh.
Cambridge, August 17.

2445d—*Erythroneura comes* var. *basilaris* (Say).
W. Medford, August 26.

The numbers used in the preceding list are those of the Van Duzee catalogue.

A DIMORPHIC SPECIES OF CEPHALONOMIA FROM TRINIDAD.

By Charles T. Brues,

Bussey Institution, Harvard University.

Cephalonomia urichi sp. nov.

Winged ♂. Length 1.6 mm. Pale honey-yellow; flagellum of antennæ piceous; tips of mandibles black, a rounded spot at base of first abdominal segment piceous, second segment near the middle with a transverse piceous band which is narrowed laterally and emarginate medially, third and fourth segment each with a similar band nearer the base, fifth segment with band narrowly indicated at the sides. Head one-third longer than wide, minutely scabrous, eyes one-third as long as the head, exclusive of mandibles; ocelli very distinct, in an equilateral triangle; head between antennæ with a short carina; antennæ 12-jointed, scape as long as the eye, pedicel one-half as long as the scape and nearly three times as long as thick, basal joints of flagellum quadrate-moniliform, apical ones longer, the penultimate joint one-third longer than thick, last joint twice as long as thick. Pro- and mesothorax and scutellum shining, faintly scabrous. Prothorax one-half longer than the mesonotum, narrowed anteriorly; mesonotum transverse, nearly twice as wide as long, without parapsidal furrows, but with a broad impressed longitudinal groove on each side next to tegulæ; scutellum large and distinct, oval and but slightly elevated, separated from the mesonotum by a narrow impressed line; at each side of the scutellum is a rounded impression which extends to the tegulæ which are large. Wings hyline to almost the middle, distinctly infuscated beyond. Subcostal vein one-third the length of the wing ending in a large, pale brown stigma. Base of propodeum very minutely roughened, middle portion with coarser, but less deeply impressed reticulations, apically almost smooth; the lateral margins are weakly carinate and the posterior edge forms a sharply rounded edge, but there are no discal carinæ. Abdomen smooth, rather shining, about as long as the thorax. Legs rather stout, especially the anterior femora; the tibiæ not spinous, tarsal claws slender, simple.

Wingless ♂. This form seems to be identical, except that the wings are not developed. The front wings are minute button-shaped discs smaller than the tegulæ, while the vestiges of the hind ones are whitish, elongate and longer than the diameter of the tegulæ. Some specimens, however, show no trace at all of wings.

♀ (Wingless.) Length 2 mm. Pale brownish-yellow, the last six antennal joints, the extreme base of the first abdominal segment and the tubular last segment of the abdomen, dark fuscous sometimes the sides of the abdomen are infuscated. Head fully one-half longer than wide, its sides parallel, hind angles rounded and the hind margin slightly excavated medially. Eyes one-fifth as long as the side of the head; ocelli indicated but imperfectly formed, the posterior ones only one-half as far from one another as from the anterior ones. Antennæ about as long as the head, 12-jointed; scape half as long as the width of the head; pedicel as long as the width of the eye, twice as long as thick; flagellum increasing in thickness from the base; the first four joints short, particularly the second and third which are strongly transverse; fifth and following, except the last, quadrate-moniliform, increasing in size. Thorax one-fourth longer than the head, slightly constricted at the hind angles of the prothorax and base of the propodeum, the latter widened at apex, with rectangular, slightly rounded angle, mesonotum not attaining the sides of the thorax, nearly twice as wide as long. Abdomen one-half longer than the thorax, broadest near the base and gradually tapering beyond the apex; last segment narrow, tubular, nearly three times as long as wide. Legs stout, but none of the tibiæ spinous.

Port of Spain, Trinidad, B. W. I.

Described from numerous specimens reared from a Psocid by F. W. Urich, and sent to me several years ago for identification.

This is a most remarkable species on account of the dimorphic males; in fact, so far as I am aware, it is the first time that such a condition has been found to exist in this or allied families. I took the wingless males at first for females, but from fresh material mounted in balsam, find that some of the apterous individuals are males with the thoracic structure antennæ and gential armature of the winged males. The remainder are females with the reduced thorax characteristic of the females of this genus.

Although the apterous males possess nothing but the most minute vestiges of wings, the structure of the thorax is not affected, suggesting that the loss of wings is not due to parasitism of any kind, but that it is a normal condition, and that the male sex of the species is truly dimorphic.

I have referred this species to the genus Cephalonomia, although the female is without wings and has large ocelli. Kieffer[1] refers all wingless females with ocelli, 12-jointed antennæ and non-spinous tibiæ to Bethylus (=*Perisemus*). In the present species, however, the portions of the thorax are fully developed as in the winged forms of Cephalonomia, which have ocelli, and the tarsal claws are simple as in Cephalonomia, not bifid as in Bethylus.

Rhagionidae

THE FEMALE OF *GLUTOPS SINGULARIS* BURGESS.

By Charles W. Johnson,

Boston Society of Natural History.

A female of this rare fly was taken by the writer along the "Red Cross Trail," on Mt. Monadnock, N. H., June 10, 1920, at an elevation of about 1,800 feet. It has not been described, and as it differs considerably from the male, seems to warrant a description.

The bluish-gray coloring of the entire insect is noticeably lighter and the hairs of the face, thorax and abdomen about one-third the length of those of the male, antennæ yellow, the hairs on the first and second joints about one-third the length of those on the male, outer half of the annuli black, and the hairs on the palpi much shorter. Front slightly wider than the width of each eye, flat, with numerous short, black hairs, except at the lower angles and above the base of the antennæ, ocelligerous tubercle prominent, ocelli shining black, occiput more protruding than in the male, and the hairs about one-third as long. The vertical angle is obsolete and the area below is not depressed as in the male, but protruding, with narrow depressions on each side extending toward the margin below the inner corners of the eyes. The rounded facial prominences are not as "conical" as in the male, and are separated by the width of the base of the antennæ. On each side of the antennæ extend deep furrows diverging towards the mouth, forming a rounded, elevated epistoma, with a narrow contracted area above

[1] Gen. Ins., fasc. 76, p. 16 (1908).

extending to the base of the antennæ. The thoracic stripes are brown and narrower than in the male, the metanotum just below the scutellum white. The base of the first abdominal segment shows two depressed, subdorsal areas, base of the second and the fifth, sixth and seventh segments, and tip of the ovipositor, brown. The halteres and legs as a whole are slightly lighter in color and wings broader than in the male. Length the same, 8 mm.

The male was described by Edward Burgess (Proc. Boston Soc. Nat. Hist., 1878, vol. 19, p. 320), from a specimen collected about 1872 near the U. S. Arsenal, Springfield, Mass., by Dr. George Dimmock. It was next captured by Mr. William Reiff near Ellis Station, Norwood, Mass., April 18, 1909 and recorded by the writer (PSYCHE, 1909, vol. 16, p. 132).[1] It was again taken by Mr. Reiff April 21, 1912, and by the writer at the same locality, May 3, 1918. I have also received a specimen for determination from Mr. H. L. Johnson, collected at South Meriden, Conn., April 17, 1915.

Among the species of the family Xylophagidæ, *Glutops singularis* is not the only rare species. The following are represented only by single specimens in the collection of the Boston Society of Natural History: *Arthropeas americana* Loew, Cheshire, Mass., June 30; *Rhachicerus nitidus* Johns., Bar Harbor, Me., July 24; *Solva aterrima*, Johns., Franconia, N. H. (Mrs. Slosson); *S. tenthredinoides* v. d. Wulp, Bretton Woods, N. H., June 29; *Xylophagus nitidus* Adams, Mt. Washington (Mrs. Slosson); *Ptiolina edeta* Walk., "Alpine Garden," Mt. Washington, July 4. There is a single record for New England of two other species, *Rhachicerus fulvicollis* Halid., Beverly, Mass. (Edw. Burgess) and *Xylophagus longicornis* Loew, Mass., but neither are represented in the Society's collection.

TWO INTERESTING ADDITIONS TO THE ODONATE FAUNA OF CONCORD, MASS.

In the Entomological News (30: 10–14, 1919) I published a list of eighty-seven species collected in Concord, Mass., and during the past spring I have made two interesting additional captures:

Nasiæschna pentacantha (Ramb.) One male taken June 15, 1920, at Bateman's Pond. The second New England record,—I having taken one at Moultonboro, N. H., on July 9, 1916 (see PSYCHE **24**: 51, 1917), and a specimen has since been sent me taken at Dedham, Mass., by Miss Eleanor Clark on June 14, 1920. Dr. Needham I find also records its capture at Wellesley, Mass. (see Bull. Ill. State Lab. Nat. Hist. 6:34, 1901).

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[1] In 1917, Mr. Arthur Gibson (47th Ann. Rept. Ent. Soc. Ont., 1916, p. 154), recorded this species from Agassiz, B.C., June 1915, collected by R. C. Treherne.

Tetragoneuria canis MacLach. Seven males taken on May 31 and June 2, 1920, at a small pond near the township border of Carlisle. The fourth New England record,—having been taken at Franconia, N. H., by Mrs. Slosson; at Jaffrey, N. H., by Mr. C. W. Johnson; and in Connecticut based on an undated and unstationed specimen in the collection of the Connecticut Agricultural Experiment Station at New Haven. This species only represented by males was almost common at this little pond on both dates. The pond is one that I have visited every year regularly at this season for the past five or six years. All the other species found flying there were ones always noticed before. I am wondering whether the nymphs of *T. canis* transform every year or whether the larval stage may cover several years. An explanation of the presence of the species at the pond this year seems difficult to explain on other grounds.

R. HEBER HOWE, JR.

Thoreau Museum of Natural History.

EXCHANGE COLUMN.

Notices not to exceed four lines in length concerning exchanges desired of specimens or entomological literature will be inserted free for subscribers, to be run as long as may be deemed advisable by the editors.

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Wanted: To exchange, or purchase for cash, specimens of the Genus Apantesis from any locality. Also to purchase rare Catocalæ.—Samuel E. Cassino, Salem, Mass.

Wanted for cash: Lowest representatives of all families of insects, preserved in fluid.—G. C. Crampton, Amherst, Mass.

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Butterflies of Japan and Formosa, will be exchanged by S. Satake, 48 Aoyama-minamimachi 5-chome, Tokyo, Japan.

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For sale, or exchange for entomological items not in my library—American Entomologist, complete; Dyar, List of N. A. Lepidoptera; Redi, Experimenta, circa Generationem Insectorum, 1686; many others.—J. E. Hallinen, Cooperton, Okla.

Wanted: To examine, determine and exchange Cicadellidæ or "Jassidæ" from all parts of North America.—J. G. Sanders and D. M. DeLong, State Capitol, Harrisburg, Pa.

Cochineal Insects: Wish to obtain living specimens of cochineal scales. Will purchase or exchange as may be desired.—C. T. Brues, Bussey Institution, Boston 30, Mass.

Wanted: Species of Rhynchophora from Eastern North America not represented in my collection, in exchange for duplicates from Indiana and Florida. Lists of desiderata and duplicates on application.—W. S. Blatchley, 1530 Park Avenue, Indianapolis, Ind.

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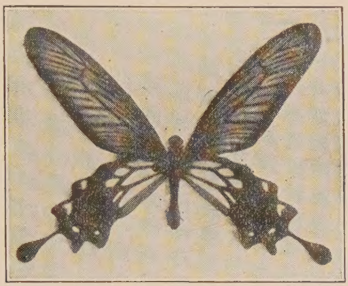

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